

# SCAG®

## GEAR DRIVE COMMERCIAL MOWERS TECHNICAL MANUAL



### MODELS

STG-18KH  
SM-61

PATENT NO. 4,885,903

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Your mower was built to the highest standards in the industry. However, your mower is only as safe as the operator. Carelessness or error on the part of the operator may result in serious bodily injury. Hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of the personnel involved in the operation, transport, maintenance, and storage of the equipment. Make sure every operator is properly trained and thoroughly familiar with all of the controls before operating the equipment.

## **SAFETY INSTRUCTIONS**

1. Know the controls and how to stop quickly. **READ THIS TECHNICAL MANUAL** and instructions furnished with attachments. A replacement manual is available by sending complete model and serial number to:  
Scag Power Equipment  
1000 Metalcraft Drive  
Mayville, WI 53050
2. Do not allow children to operate the machine. Do not allow adults to operate it without proper instruction.
3. Do not carry passengers. Do not mow when children and others are around.
4. Clear the work area of objects (wires, rocks, etc.) that might be picked up and thrown.
5. Disengage power to all attachments and shift into neutral before attempting to start the engine.
6. Disengage power to attachments, stop the engine and remove key before leaving the operator's position.
7. Disengage power to attachments, stop the engine and remove key before making any repairs or adjustments.
8. Disengage power to attachments when transporting or not in use.
9. Take all possible precautions when leaving the machine unattended, such as disengaging power to attachments, lowering the attachments, setting the parking brake, stopping the engine, and removing the key.
10. Do not operate machine while wearing sandals, tennis shoes, sneakers or shorts. Also, do not wear loose fitting clothing which could get caught in moving parts. Always wear long pants and substantial shoes. Wearing safety glasses and safety shoes is advisable and required by some local ordinances and insurance regulations.
11. Do not stop or start suddenly when going uphill or downhill. Mow up and down the face of steep slopes; never across the face.
12. Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing direction on slopes.
13. Stay alert for holes, rocks, and roots in the terrain and other hidden hazards. Keep away from drop-offs.
14. Use care when pulling loads or using heavy equipment.
  - a. Use only approved drawbar hitch points.
  - b. Limit loads to those you can safely control.
  - c. Do not turn sharply. Use care when backing.
  - d. Use counterweights or wheel weights when suggested in this technical manual.
15. Watch out for traffic when crossing or near roadways.
16. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.
17. Handle gasoline with care - it is highly flammable.
  - a. Use approved gasoline container.
  - b. Never remove the fuel cap of, or add gasoline to, a running or hot engine or an engine that has not been allowed to cool for several minutes after running. Never fill the tank indoors and always clean up spilled gasoline.
  - c. Open doors if the engine is run in the garage. Exhaust fumes are dangerous. Do not run the engine indoors without proper ventilation.
18. Keep the machine and attachments in good operating condition, and keep safety devices and shields in place and in working condition.
19. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
20. Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.
21. To reduce fire hazard, keep the engine free of grass, leaves or excessive lubricants.

**SAFETY INSTRUCTIONS, CONT'D**

22. The machine and attachments should be stopped and inspected for damage after striking a foreign object. The damage should be repaired before restarting and operating the equipment.
23. Do not change the engine governor settings or overspeed the engine.
24. When using the machine with mower, proceed as follows:
  - a. Mow only in daylight or in good artificial light.
  - b. Never make a cutting height adjustment while engine is running if the operator must dismount to do so.
  - c. Shut the engine off and remove key when removing the grass catcher or unclogging chute.
  - d. Check the blade mounting bolts for proper tightness at frequent intervals.
25. Under normal usage, the grass catcher bag material is subject to deterioration and wear. Check bag frequently for deterioration and wear and replace worn bags. Check that replacement bags comply with the original manufacturer's recommendations or specifications.
26. Disengage power to mower before backing up. Do not mow in reverse unless absolutely necessary and then only after observation of the entire area behind the mower.
27. The discharge chute must be installed and in the down position on the side discharge cutting unit except when optional grass catcher is completely installed. If the cutting unit discharge ever plugs, shut engine off and wait for all movement to stop before removing obstruction.
28. Perform only those maintenance instructions described in this manual. If major repairs are needed or assistance is desired, contact an Authorized Scag Servicing Dealer. To ensure optimum performance and safety, always purchase genuine SCAG replacement parts and accessories. NEVER USE "WILL FIT" replacement parts or accessories made by another manufacturer. Use of unapproved replacement parts may void the warranty.

**! WARNING**

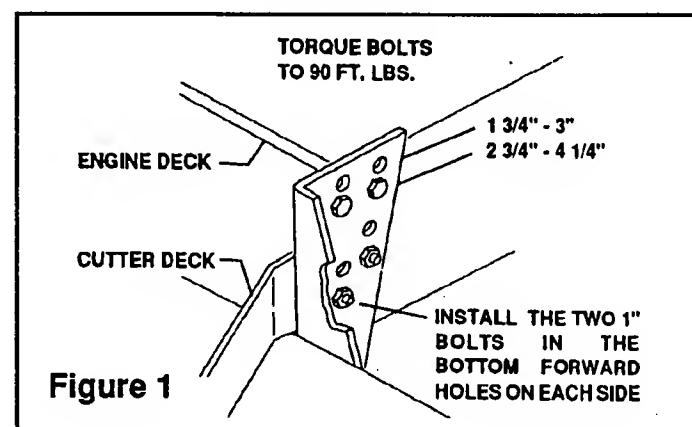
**DO NOT** operate on steep slopes. To check a slope, attempt to back up (with cutter deck down). If unit can back up the slope without the wheels slipping, then slope should be managable with careful operating procedures.

**ASSEMBLY INSTRUCTIONS**

1. Remove all crating and packing materials.
2. Lay out loose bolts and nuts according to "Where Used" as listed in the loose parts packing list.
3. Block the cutter deck up, about two inches off the floor.
4. Remove belt cover. Remove mower engage control rod.
5. Move tractor assembly to cutter deck so that mounting brackets clear engine deck.
6. Unwind winch lift cable and tilt engine deck to horizontal position. Align the lower set of holes in the mower deck brackets and insert drift pins on each side to temporarily locate holes.

**! IMPORTANT**

7. Use lower set of holes in deck mounting brackets for mowing in the range of 2-3/4" through 4-1/4". Use the upper set of holes in the deck mounting brackets for mowing in the range of 1-3/4" through 3". (See figure 1) Insert (6) 1/2-13 x 1-1/2 bolts; (2) 1/2-13 x 1" bolts, flat washers, lock washers and hex nuts. Tighten all eight bolts very securely. Then go back and retorque each one to 90 ft. lbs.

**Figure 1**

**ASSEMBLY INSTRUCTIONS, CONT'D**

8. Raise cutter deck using lift winch and assemble front caster wheels using eight (8) 5/16-18 x 3/4" bolts, lock washers and nuts.
9. Install the mower engagement control rod. Secure with hair pin cotter at both ends.
10. Route blade drive belt over engine pulley. Be sure belt clears the belt guide saddle at center spindle and is positioned between the pulley and its belt guide at the center pulley support bracket.
11. Push mower engagement lever forward until it snaps to rest. Adjust belt tension as specified in adjustment sections. DO NOT adjust too tight.
12. Install grass discharge deflector chute using two (2) 5/16-18 x 1" bolts and elastic stop lock nuts.
13. Place seat assembly on the seat support spring using two (2) 3/8-16 x 3/4" bolts and lock washers. Seat can be positioned forward or backward for operator comfort.
14. Insert steering handle on shaft and secure with one (1) 5/16-18 x 1-3/4" bolt, two (2) washers and a locknut. Tighten securely.
15. Reduce tire pressure to values below.

Caster Wheels	25PSI
Rear Steering Wheel	25PSI
Drive Wheels	15PSI

**NOTE:** Tires are over inflated for shipping purposes.

**⚠ WARNING**

Severe chemical burns may result from improper handling of battery electrolyte. Use proper eye, skin and clothing protection.

External contact: Flush with water.

Internal contact: Do not give fluids that would induce vomiting. Drink large quantities of water, followed with milk of magnesia, beaten egg or vegetable oil. Contact a physician immediately! Eye contact: Flush with water for at least 15 minutes and get medical attention immediately!

**⚠ WARNING**

Explosive gases are vented from a battery when being charged or discharged which could explode if exposed to a flame or spark.

17. Fill each battery cell with electrolyte solution to level indicator. Charge at 3 to 5 amps for about 2 hours. Check fluid level and add electrolyte until level is up to the bottom of the split ring.

NOTE: Future need to adjust fluid level requires distilled water.

Wash and dry off battery. Coat terminals with grease to minimize corrosion.

Sparking can be minimized by connecting the positive cable first, covering the connection with the rubber boot, then connecting the negative cable.

18. Reinstall battery.
19. All oil is removed from engine before shipment. Add oil to the level specified in the engine manual.
20. Fill fuel tank.
21. Open shut-off valve under tank.
22. After initial run and inspection of cutter belt, replace belt cover.

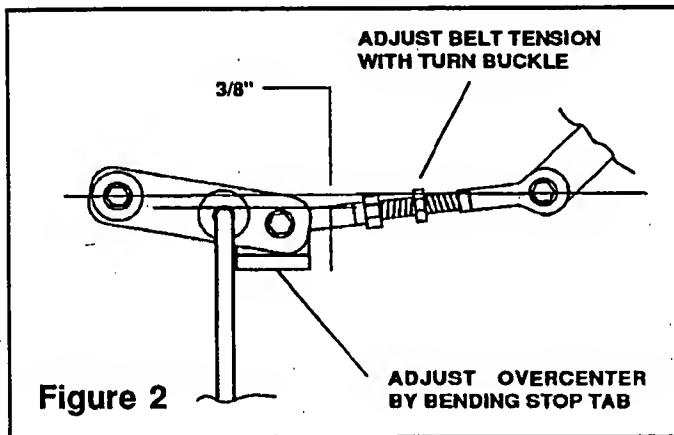
## ADJUSTMENT INSTRUCTIONS

### Drive Belts

#### Cam Link Over-Center

The over-center adjustment must be checked and adjusted before setting the belt tension.

Engage the blade clutch lever and check for proper over-centering. There should be about  $3/8"$  between rod and straight edge. (See figure 2) Bend the stop tab to adjust the clearance.

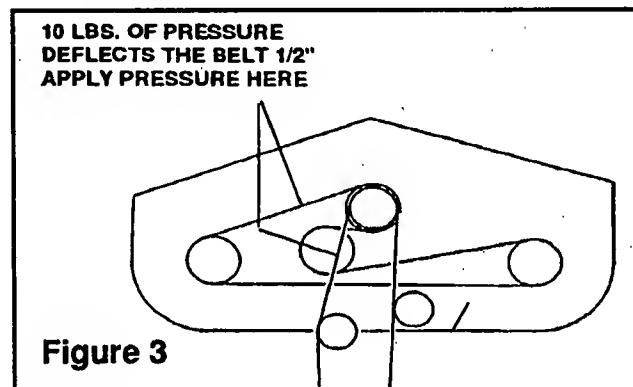


#### Cutter Deck Drive Belt:

Belt tension should not be adjusted until over-center spacing is checked. Adjust blade drive belt so that the belt moves  $1/2"$  with 10 pounds of pressure. (See figure 2)

#### Blade Drive Belt:

Adjust cutter deck belt by turning lock nut on "J" pull rod where applicable. About 10 lbs. pull sideways deflects belt  $1/2$  inch. Test belt at short section between center spindle and left hand spindle (See figure 3)



#### Belt Alignment

Align belt horizontally between the center spindle pulley and engine pulley. Remove or install the spacer located under the stationary idler bracket to get belt and pulley alignment.

#### Belt Guides

Check that all belts clear their belt guides by about  $1/8$  to  $3/16$  inch. Adjust guides if necessary.

**IMPORTANT:** Readjust new belt tensions after 4 hours of operation and again after about 24 hours to take up initial stretch and wear.

#### Cutter Deck

Due to the many conditions that exist, it is difficult to suggest a setting that will work for every lawn. The two adjustments that can be made on these decks are pitch and height.

PITCH is the angle of the blades (comparing front to rear). A positive pitch is when the front (leading) edge of the cutting plane is lower than the rear (trailing) edge. Level pitch is when both front and rear are basically level. A negative pitch is when the leading edge is higher than the rear edge.

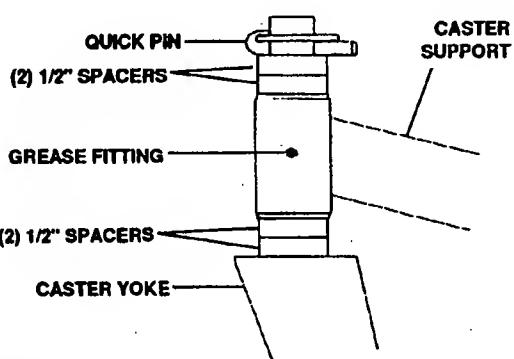
**ADJUSTMENT INSTRUCTIONS**

**HEIGHT** is the nominal distance the blade is off of the ground (this measurement is made with the blades pointed side to side with distance measured between cutting tip and ground). Adjusting the blade height can be done by moving any number of the five spacers on the blade mounting bolts to the top of the spindle shaft or below the spindle shaft. (All blades should be positioned equally.) The adjustment does not affect blade pitch.

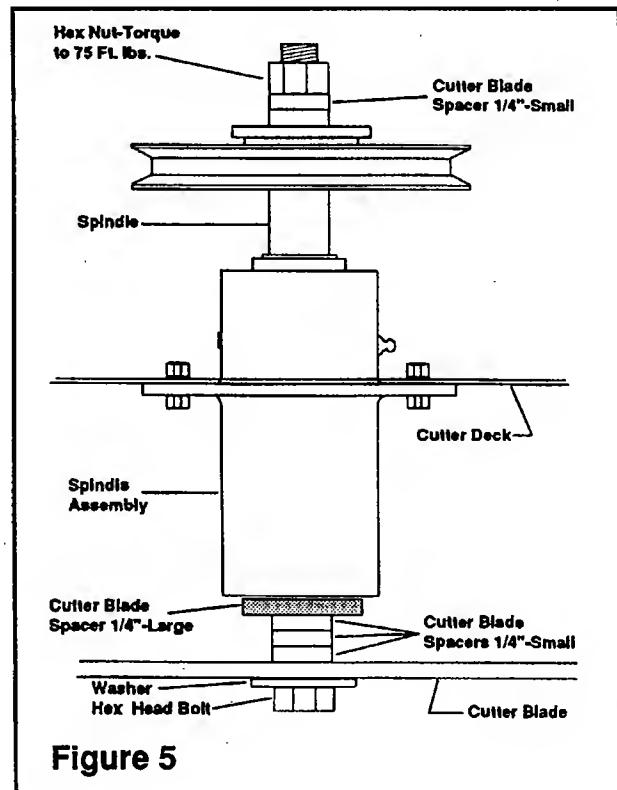
For best results, keep the cutter deck high in relationship to the engine deck and the blades low in the cutter deck; i.e. 3,4,5 spacers below the spindle shaft.

Additional range to the cutting height can be achieved by repositioning the cutter deck in relationship to the engine deck. (This adjustment also affects the pitch of the deck). There are two positions. (See figure 1, page 3) Suggested mounting is in the bottom hole. For cutting lower, mount the cutter deck in the upper hole to drop the deck down. Check the cutter deck belt alignment after repositioning the deck.

Caster spacers also can be repositioned to change cutting heights and to change the pitch of the deck. (See figure 4)

**Figure 4****Tapered Bearing Spindle Assembly**

Adjusting the blade height can be done by moving any number of the four smaller 1/4" spacers on the blade mounting bolts to the top of the spindle shaft or below the spindle shaft. (All blades should be positioned equally.) The tapered bearing spindle has a large 1/4" spacer that is installed directly below the spindle housing and is secured to the spindle with two roll pins. The blade can be adjusted all the way up to the spindle assembly if all the smaller 1/4" spacers are removed and installed above the pulley. The larger 1/4" spacer can then be removed along with the roll pins. (Do not install the larger 1/4" spacer above the pulley, store it in a convenient location away from the machine.) When any 1/4" spacers are installed above the blades, the larger 1/4" spacer must be installed directly below the spindle housing. If a smaller 1/4" spacer is installed directly below the spindle housing and contacts the retaining ring, a non-warrantable failure will occur. For best cut and discharge, a minimum of three spacers should be between the blade and spindle. (See figure 5)



## ADJUSTMENTS CONT'D

### Clutch/Brake Control

Three adjustments must be made together and in proper sequence or improper operation and possible damage to the clutch cable, brake cable, pulley, and or brake system may result.

1. With parking brake released adjust foot pedal so that it is 3-1/2" - 4" above foot rest (see figure 6). HINT: Use a 2x4 board on edge between pedal and foot rest for approximate positioning. Adjust foot pedal position by adjusting the two cable mounting nuts located on each end of the cable housing.

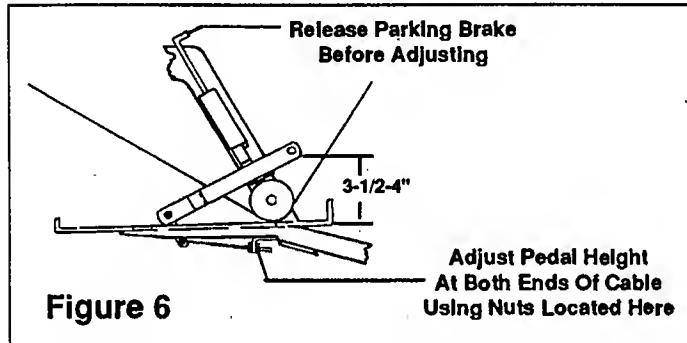


Figure 6

2. To adjust the brake, release the clutch/brake pedal (foot pedal is in the up position, with tension on the transaxle belt). Move brake cable pulley (See figure 7) forward or backward in its slot to permit transaxle brake lever to rest against its stop (See figure 8)

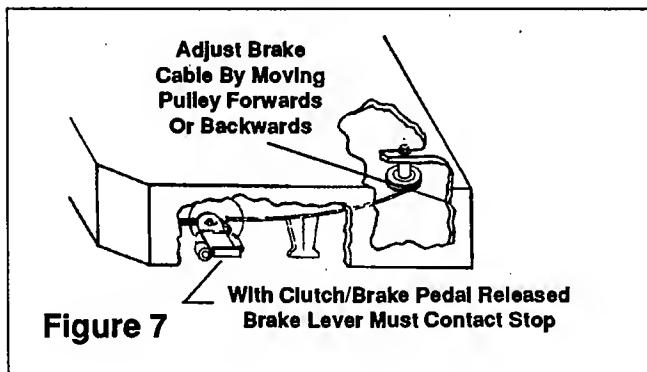


Figure 7

3. Then adjust brake lever nut to permit free movement of lever about 1/8" from stop by pushing lever with hand pressure. (Pads must not "drag" on brake disc when adjusted.) If brake lever is too tight, shifting may be impossible and brake wear will be excessive.

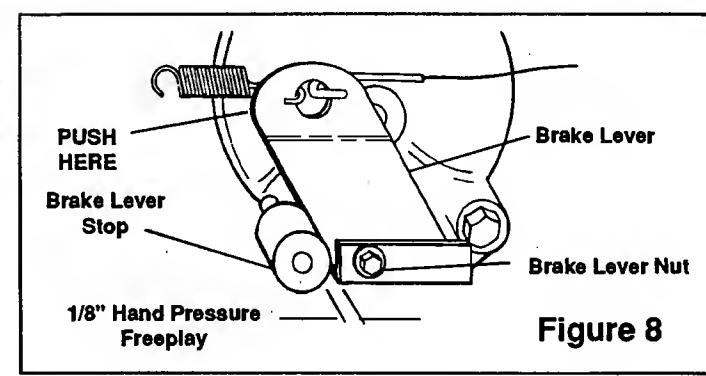


Figure 8

## OPERATION AND INITIAL RUN-IN

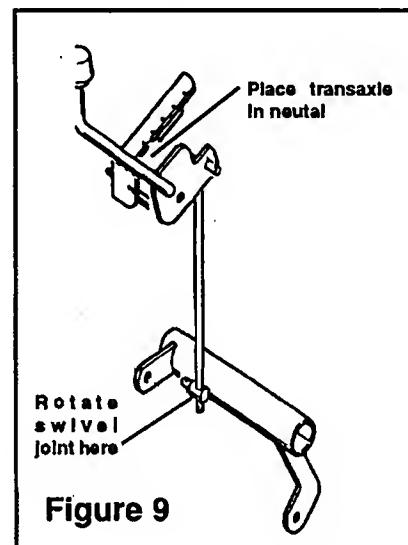


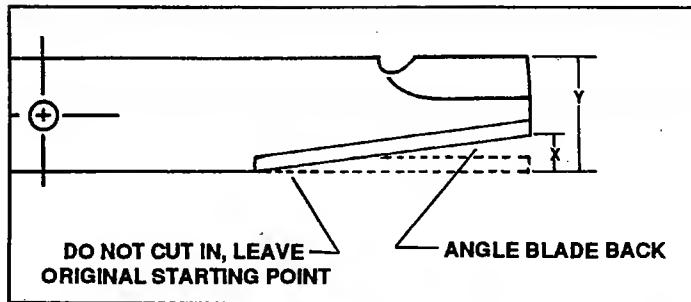
Figure 9

Transaxle shifter neutral may require adjustment so that starter engages at neutral stop. With transaxle in neutral, rotate swivel joint to lengthen or shorten shift rod so shift quadrant reads neutral. (See figure 9)

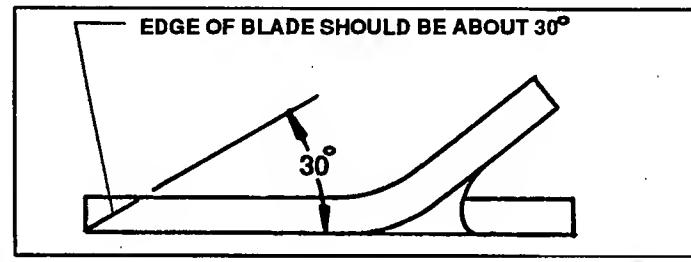
1. Set parking brake before starting engine. Please Remember: To start engine, three interlock switches must be activated:
  - a. The shift lever must be in neutral.
  - b. The mower engage lever must be pulled all the way back (and held there).
  - c. The foot interlock switch pedal on the left side must be depressed.
2. Run new engine at half speed about 5 minutes before applying any load.
3. Adjust carburetor fuel-air mixture valves according to specifications in engine manual.
4. To release parking brake, depress right hand foot pedal, lift brake lever and rotate 90 degrees and release foot pedal.
5. Readjust shift lever for proper neutral, if necessary. **Note: Do not shift on the go. You must declutch before shifting.**

**OPERATION AND INITIAL RUN-IN**

1. Check for correct routing of belts and for correct clearance of belt guides.
2. Check for correct alignment and initial tension of cutter blade drive belts.
3. Check that all fasteners are correctly tightened.
4. Check engine oil level.
5. Fill fuel tank with clean fresh lead free gasoline.
6. To start engine: Pull mower engagement lever to off position. Depress the left foot (operator presence) pedal. Shift transaxle into neutral. Put parking brake in engaged position. Adjust throttle and choke as required. Turn ignition key to start.
7. To engage blades release the parking brake. Push mower engagement lever forward until over-center snaps into the engaged position. Allow belts to run-in for 5 minutes initially.
8. To operate the unit forward and backward, hold clutch pedal down while releasing brake lock. Shift into desired gear. Release clutch pedal slowly. Check that all systems function correctly. To change gears, always declutch before shifting.
9. To coast to a stop, depress clutch pedal partially. To fully brake, depress clutch pedal completely. Always engage parking brake before leaving the machine.
10. Shut off engine and recheck cutter deck drive belts for proper tension, and any signs of rubbing. Correct and adjust as necessary.

**MAINTENANCE****Cutter Blades**

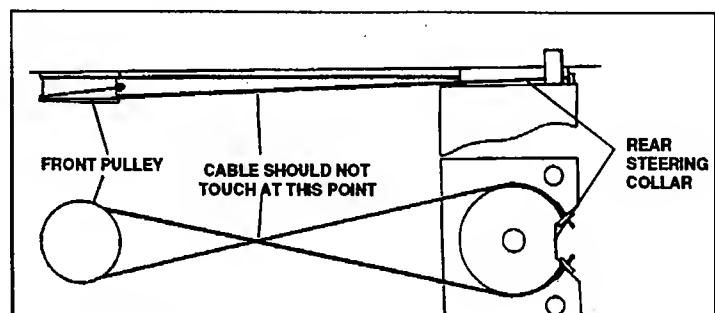
**Do not sharpen (X) beyond 1/3 of the width (Y) of the blade.**



**Suggestion:** Dress the blade with a file. Using a wheel grinder may burn the blade.

**Steering Cable Routing**

When the steering cable is routed between the front pulley and the rear steering collar, it is very important that the cable does not rub where it crosses. The top of the cable end from the front pulley must go over the top of the lower cable end. (See figure 10) Cable should be tightened until the slackness has been removed. Cable should not be under tension.



**Figure10**

## LUBRICATION &amp; MAINTENANCE

8 Hours (Daily)		40 Hours (Weekly)		100 Hours (Biweekly)		200 Hours (Monthly)	
PROCEDURE							COMMENTS
X	X	X	X	*			Do not over fill MORE OFTEN IF NECESSARY
	X	X	X	X			+ US Lithium MP White Grease 2125
X	X	X	X				See engine mfg. information Distilled water only Adjust as required
X	X	X	X				Chassis grease Chassis grease Chassis grease Anti-seize compound
X	X	X	X				See engine manufacturer information See Adjustments: Clutch/Brake (page 7) Chassis grease Chassis grease Chassis grease Chassis grease Chassis grease Chassis grease Chassis grease Chassis grease Chassis grease + US Lithium MP White Grease 2125 LPS type lubricant

\* Depending on climate and environment, lubrication may be required every 8 to 40 hours.  
Do not over grease as this may damage seal.

+ Compatible Greases:

Lidok EP #2 found at Industrial Shops

Ronex MP found at Exxon Service Stations

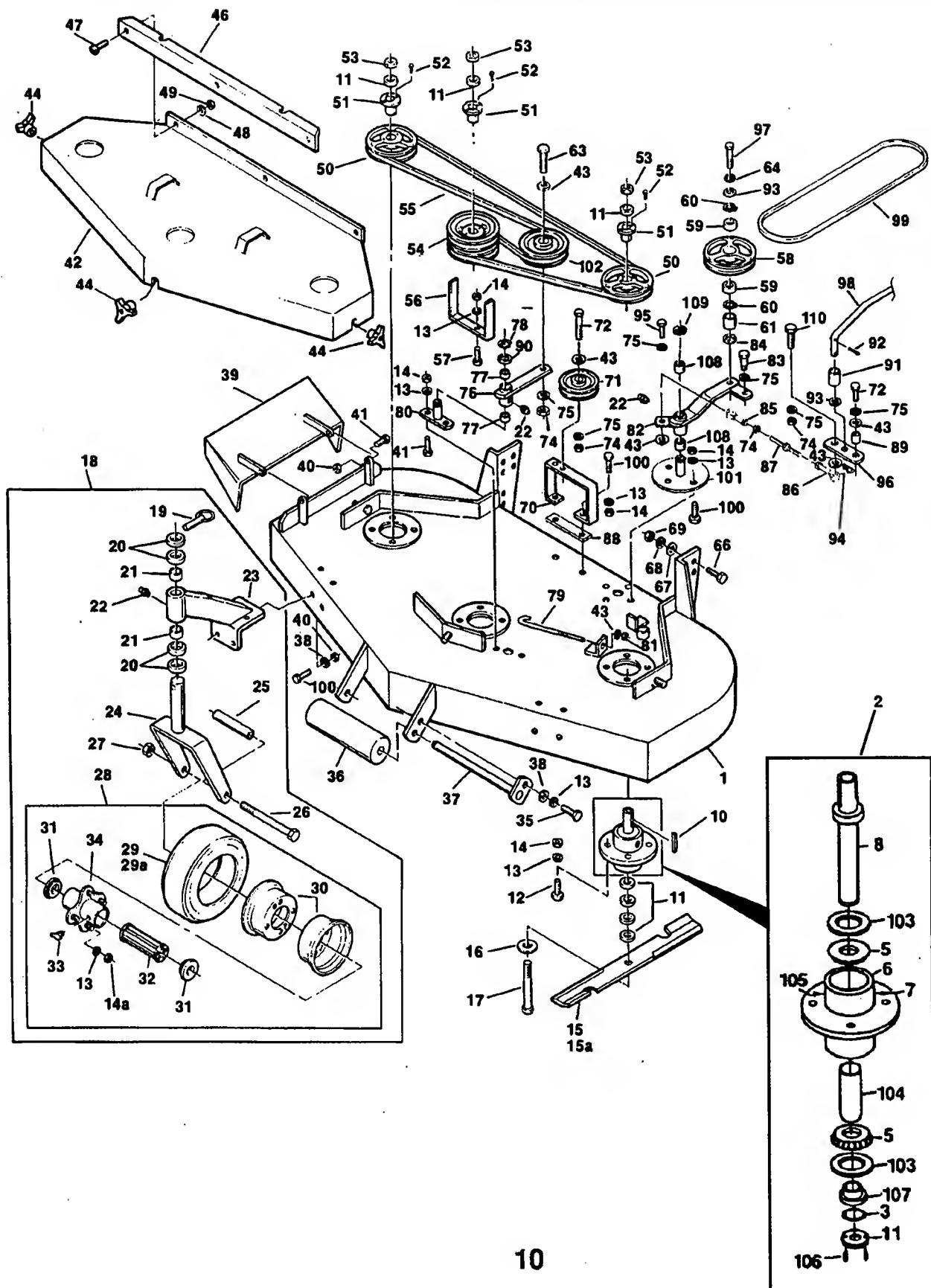
Shell Alvania #2 found at Shell Service Stations

Mobilux #2 found at Mobil Service Stations

Super Lube M EP #2 and Super Stay-M #2 found at Conoco Service Stations

**Note:** Transaxle does not require lubrication, however users have found that a few tablespoons of STP Oil Treatment added to the transaxle extends its life. We suggest this procedure once per season.

## **SM-61 CUTTER DECK**

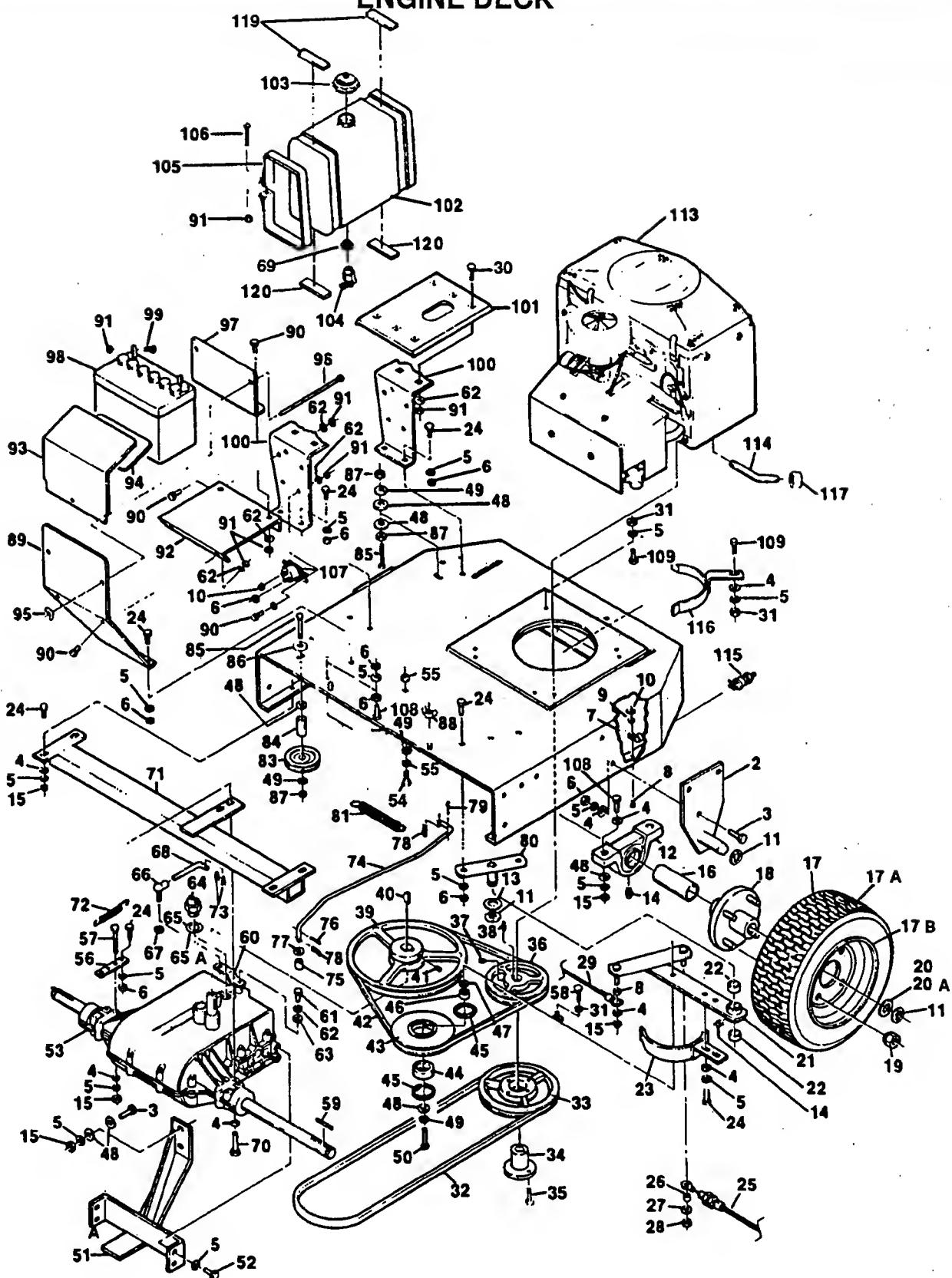


## SM-61 CUTTER DECK

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	46245	Cutter Deck (incl. Decal)	54	48128	Pulley, Double (includes 51-52)
2	46400	Spindle Assembly, Tapered Bearing	55	48607	Belt, Blade Drive
3	04050-04	Retaining Ring, 1" Ext.-Inverted	56	42063	Belt Guide
4	04050-07	Retaining Ring, 2-7/16" Int.-Basic	57	*	Bolt, Hex Hd., 5/16-18 x 1-1/2"
5	48668	Tapered Bearing	58	48062	Pulley Idler
6	41007	Spindle Housing, Tapered Bearing	59	48182	Bearing
7	48114-02	Grease Fitting, Str. 5/16 Serrated	60	04050-06	Retaining Ring, 1-9/16" Int. Basic
8	45391	Spindle Shaft, Tapered Bearing	61	43045	Sleeve, Idler Bearing
9	04041-02	Washer, 5/16 x 2-7/16 x 16 ga.	62	43040	Spacer, Idler Bearing
10	04063-08	Key, 1/4 x 1/4 x 2"	63	*	Bolt, Hex Hd., 3/8-16 x 2-3/4"
11	43201	Spacer, Cutter Blade	64	*	Lockwasher, Spring 1/2"
12	*	Bolt, Hex Hd., 5/16-18 x 1-1/4"	66	*	Bolt, Hex Hd., 1/2-13 x 1-1/4"
13	*	Lockwasher, Spring, 5/16"	66	*	Bolt, Hex Hd., 1/2-13 x 1-1/2"
14	*	Hex Nut, 5/16-18	67	*	Flat Washer, 1/2"
14A	*	Hex Nut, 5/16-24	68	*	Lockwasher, 1/2"
15	48111	Cutter Blade, 21" Standard Lift	69	*	Hex Nut, 1/2-13, Elastic Stop
15A	48304	Cutter Blade, 21" High Lift	70	42536	Idler Pulley Support
16	04040-10	Flat Washer, 5/16"	71	48413	Pulley, Belt Guide
17	04001-41	Bolt, Hex Hd., 5/8-11 x 9-1/2"	72	*	Bolt, Hex Hd., 3/8-16 x 2"
18	46079	Caster Assy, Comp. (Incl. 19-28)	74	*	Hex Nut, 3/8-16
19	04066-01	Quick Pin	75	*	Lockwasher, Spring, 3/8"
20	43037-01	Spacer, Caster Yoke, 1/2" Long	76	46081	Idler Arm Assy. (Incl. 22 & 77)
21	48100-01	Bronze Bearing	77	48100-05	Bronze Bearing
22	48114-04	Grease Fitting, Str. 1/4-28	78	04050-02	Retaining Ring, 3/4" Ext. "E"
23	46082	Support Assy. (Incl. 21-22)	79	43028	Rod, Idler Pull, J
24	45006	Caster Yoke	80	45037	Idler Pivot
25	43022	Sleeve, Caster Wheel Bearing	81	*	Hex Nut, 3/8-16, Elastic Stop
26	04001-37	Bolt, Hex Hd., 1/2-13 x 5-1/2"	82	46383	Idler Arm Assy. (Incl. 22 & 77)
27	*	Hex Locknut, 1/2-13	83	43054	Shoulder Bolt
28	48307-01	Wheel Assy. (Incl. 13-14, 14a, 29-34)	84	43041	Spacer, Idler
29	48307-02	Tire Only, Caster Wheel	85	48544	Rod End, LH (gold colored)
29A	48006-03	Inner Tube Only, Caster Wheel	86	48454	Rod End, RH (silver colored)
30	48307-04	Rim Pair, Caster Wheel	87	48590	Link, Turnbuckle
31	48006-07	Retainer, Bearing, Caster Wheel	88	42917	Spacer Bar
32	48006-06	Roller Bearing, Caster Wheel	89	43042	Sleeve, Cam Clutch
33	48114-03	Grease Fitting, 45, 1/4-28	90	04041-08	Washer, 3/4 (49/64 x 1-1/4 x 16 ga.)
34	48006-05	Hub Assy. w/Bolts	91	43043	Sleeve, Clutch Rod
35	*	Bolt, Hex Hd., 5/16-18 x 3/4"	92	*	Cotter Pin, 3/32 x 1"
36	48038	Guide Roller	93	*	Washer, 33/64 x 1 x 16 ga.
37	45046	Roller Shaft	94	04062-01	Hair Pin, Large
38	*	Washer, 3/8 x 7/8 x 13 ga.	95	*	Bolt, Hex Hd., 3/8-16 x 1"
39	45029	Discharge Chute	96	421107	Cam Link
40	*	Hex Nut, 5/16-18 Elastic Stop	97	*	Bolt, Hex Hd., 1/2-20 x 2"
41	*	Bolt, Hex Hd., 5/16-18 x 1"	98	44017	Rod, Blade Engage (approximately 27" long)
42	446151	Belt Cover (Incl. Decals)	99	48083	Bolt, Cutter Drive
43	*	Washer, 25/64 x 15/16 x 12 ga.	100	*	Bolt, Hex Head, 5/16-18 x 1"
44	04029-03	Wing Nut, 3/8-16	101	45329	Idler Pivot
45	43123	Spacer	102	48531	Pulley, Idler
46	42045	Belt Cover Skirt	103	48681	Seal, Tapered Bearing Spindle
47	*	Machine Screw, 1/4-20 x 1-1/2 Truss Head	104	43218	Sleeve, Tapered Bearing Spindle
48	*	Lockwasher, Spring, 1/4"	105	48677	Idler Fitting, Tapered Bearing Spindle
49	*	Hex Nut, 1/4-20	106	*	Roll Pin, 1/8 x 12"
50	48127	Pulley (Incl. 51-52)	107	43217	Bushing, Tapered Bearing Spindle
51	48141	Taper Hub	108	48100-02	Bronze Bearing
52	*	Bolt, Hex Hd., 1/4-20 x 3/4"	109	04050-05	Retaining Ring - Est. "E" - 1-1/8"
53	*	Hex Nut, 5/8-11	110	*	Hex Hd. Bolt, 3/8-16 x 1-1/2"

\* Common hardware which should be purchased locally. All bolts Grade 5 plated, all other fasteners zinc plate.

## ENGINE DECK

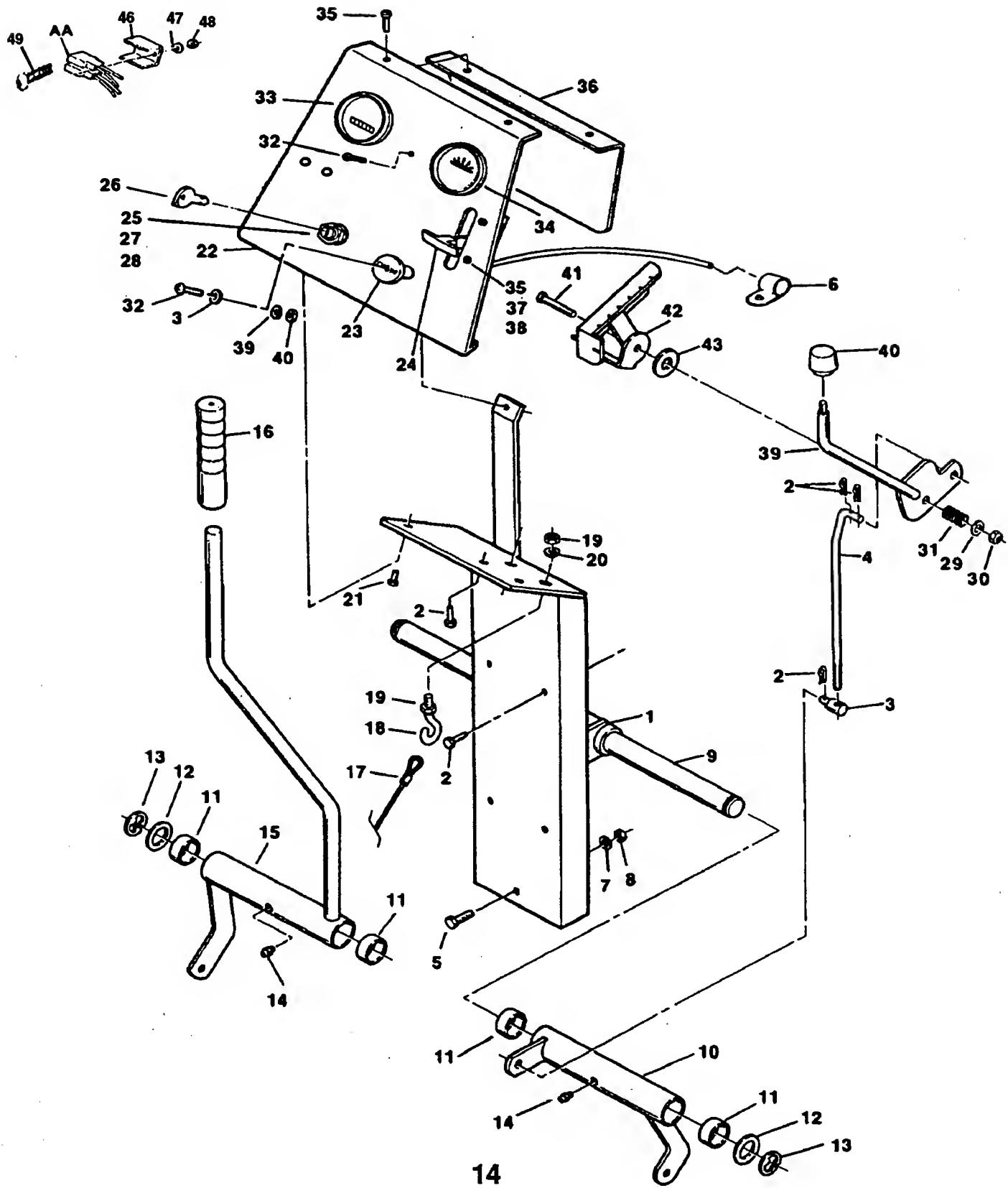


## ENGINE DECK

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	45146	Engine Deck	60	42368	Shift Lever
2	45149	Hitch Bracket	61	04001-55	Hex Hd. Bolt, 1/4-28x3/4 Grd.8
3	*	Hex Head Bolt, 5/16-18 x 1"	62	*	Lockwasher, Spring, 1/4"
4	*	Washer, 11/32 x 11/16 x 16 ga.	63	04043-01	Washer, 17/64x7/8x1/8 H.T.
5	*	Lockwasher, Spring, 5/16"	64	48021	Neutral Safety Switch
6	*	Hex Nut, 5/16-18	65	48122-01	Fiber Washer, 010
7	48030-01	Clamp	65A	48122-02	Fiber Washer, 020
8	*	Philps Wahl Hd Screw #10-32 x 1/2"	66	48118	Ball Joint
9	*	Lockwasher, #10 Ext. 100 in	67	04021-06	Hex Lock Nut, 3/8-24
10	*	Hex Nut, #10-32	68	44016	Shift Connector Rod
11	04050-08	Retaining Ring, 1 Ext. "E"	69	48309	Bushing, Fuel Tank Valve
12	48104-02	Bearing, Pillow Block 1"	70	*	Hex Head Bolt, 5/16-18 x 3"
13	04041-08	Washer 49/64 x 1 1/4 x 16 ga.	71	45147	Transaxle Support
14	48114-01	Grease Fitting, Str., 1/4-28	72	48052	Spring, Brake Return
15	*	Hex Lock Nut, 5/16-18	73	04062-02	Hair Pin, Small
16	43107	Spacer, LH Axle	74	44017	Blade Clutch Rod
17	48321	Drive Wheel Assembly	75	43043	Sleeve
17A	48321-02	Tire, 18 x 8.50-8, 4 ply	76	*	Cotter Pin, 3/32 x 1"
17B	48321-04	Him	77	*	Washer, 33/64 x 1 x 16 ga.
18	48321-05	Hub & Flange (includes Bolts)	78	44016-01	Hair Pin, Large
19	48321-06	Bolt and Nut	79	*	Cotter Pin, 3/32 x 3/4"
20	04042-05	Washer, 1-1/16 x 1-3/4 x 12 ga.	80	45037	Pivot Base Wld.
20A	04041-14	Washer, 1-1/16 x 1-3/4 x 18 ga.	81	48051	Spring, Belt Clutch
21	46144	Idler Arm (Includes 14 & 22)	82	42060	Bracket, Spring Mounting
22	48100-05	Bronze Bearing	83	48066	Pulley, Brake Cable
23	45014	Belt Guide	84	43024	Spacer, Pulley
24	*	Hex Head Bolt, 5/16-18 x 3/4"	85	*	Hex Head Bolt, 3/8-16 x 3"
25	48241	Foot Cable Assembly	86	*	Washer, 13/32 x 1-1/2 x 7 ga.
26	43049	Sleeve, Foot Cable	87	*	Hex Nut, 3/8-16
27	*	Washer, 9/32 x 5/8 x 16 ga.	88	04029-03	Wing Nut, 3/8-16
28	*	Hex Lock Nut, 1/4-20	89	42187	Battery Mounting Bracket
29	48046	Brake Cable	90	*	Hex Head Bolt, 1/4-20 x 3/4"
30	*	Carriage Head Bolt, 1/4-20 x 3/4"	91	*	Hex Nut, 1/4-20
31	*	Hex Nut, 5/16-18, Elastic Stop	92	42188	Battery Shelf
32	48083	Belt, Blade Drive SM61	93	42024	Battery Cover
33	48168	Pulley, Mower Drive (Incl. 34 & 35)	94	48099	Battery Cover Pad
34	48168-03	Taper Hub	95	48122-01	Wing Nut, 1/4-20
35	*	Hex Head Bolt, 1/4-20 x 1-3/8"	96	48113-01	Carriage Bolt, 1/4-20 x 6"
36	48063	Pulley	97	42055	Battery Clamp
37	*	Setscrew, Hex Skt, 5/16-18 x 1-1/4"	98	48015	Battery
38	04063-03	Key, 1/4 x 1/4 x 2-1/2"	99	*	Hex Head Bolt, 1/4-20 x 1/2"
39	48322	Pulley, Transaxle	100	42370	Tank Mtg. Bracket (Vertical)
40	04063-09	Key, Hi Pro #9	101	42377	Support, Fuel Tank (Horizontal)
41	*	Setscrew, Hex Skt, 5/16-18 x 3/8"	102	46174	Fuel Tank (Incl. 103, 104, & 132)
42	48085	Belt, Transaxle Drive	103	48311	Fuel Tank Cap
43	48065	Pulley, Idler	104	48308	Fuel Shut-off Valve
44	42102	Bearing, Idler Pulley	105	42369	Fuel Tank Strap
45	04050-06	Retaining Ring, 1-9/16" Int. Basic	106	*	Screw, Slotted Hd Hd Mach. 1/4-20 x 2"
46	43044	Sleeve, Transmission Idler Bearing	107	48016	Solenoid
47	43039	Spacer, Transmission Idler	108	*	Hex Head Bolt, 5/16-18 x 1-1/2"
48	*	Washer, 25/64 x 15/16 x 12 ga.	109	*	Hex Head Bolt, 5/16-18 x 1-3/4"
49	*	Lockwasher, Spring, 3/8"	110	*	Hex Head Bolt, 5/16-18 x 2"
50	*	Hex Head Bolt, 3/8-16 x 1-1/2"	111	48059-01	Fuel Hose Clamp
51	45148	Transaxle Protector	112	48058-07	Fuel Hose
52	*	Hex Head Bolt, Taptite, 5/16-18 x 3/4"	113	48258	Engine, 18 HP Kohler
53	43310	Transaxle	114	48115	Oil Drain Extension
54	*	Hex Head Bolt, 3/8-16 x 5"	115	48019	Safety Switch, Blade Clutch
55	*	Hex Jam Nut, 3/8-16	116	48222	Belt Guide Weldment
56	42367	Spacer, Transaxle	117	*	Pipe Cap, 3/8 NPT
57	*	Hex Head Bolt, 5/16-18 x 3"	118	48255	Pipe Nipple w/Special Threads
58	*	Carriage Head Bolt, 5/16-18 x 1"	119	48292	Pad, Strap Cushion
59	04063-11	Key, 1/4 x 1/4 x 2-1/2" Plated	120	48205	Pad, Tank Support

**AA - Fuse Holders  
Part of Wiring Harness  
See Page 20.**

## INSTRUMENT PANEL

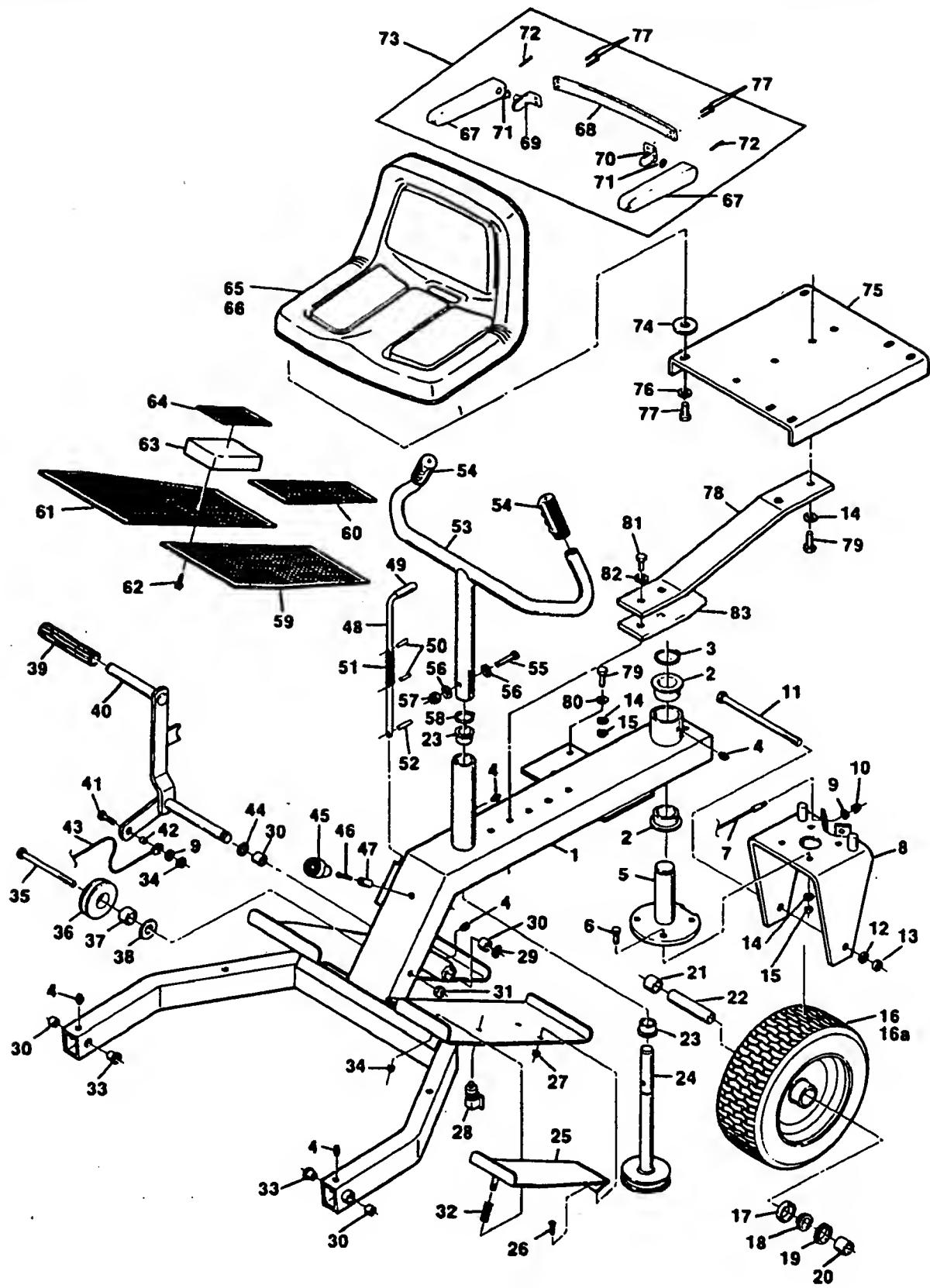


## INSTRUMENT PANEL

Ref.	Part	Description
No.	Number	Description
1	45025	Console Support
2	04062-01	Hair Pin Cotter, Large
3	43032	Swivel Joint
4	43030	Shift Connector Rod
5	*	Hex Head Bolt, 5/16-18 x 2-1/4"
6	43030-01	Clamp, Cable
7	*	Lockwasher, 5/16 Spring
8	*	Hex Lock Nut, 5/16-18
9	43017	Bellcrank Shaft
10	46142	Shifter Assembly (Includes 11 & 14)
11	48100-06	Bronze Bearing
12	04041-08	Washer, 49/64 x 1-1/4 x 16 ga.
13	04050-02	Retaining Ring, 3/4 Ext. "E"
14	48114-04	Grease Fitting, 1/4-28 Str.
15	46143	Mower Engage (Includes 11,14,16)
16	48093	Grip, Mower Lever
17	48045	Winch Cable Assembly
18	04070-03	Eyebolt, 3/8-16 x 2"
19	*	Hex Nut, 3/8-16
20	*	Lockwasher, 3/8 Spring
21	*	Hex Head Bolt, 1/4-20 x 3/4"
22	42049	Instrument Panel
23	48091	Choke Control
24	48090	Throttle Control
25	48017	Starter Switch (Includes 26-28)
26	48017-02	Key, Ignition
27	48017-03	Lockwasher, Internal Tooth, 5/8
28	48017-04	Hex Nut, 5/8-11
29	*	Washer, 13/32 x 13/16 x 16 ga.
30	*	Hex Nut, 3/8-16 Elastic Stop
31	48050	Spring
32	*	Truss Head Screw, 1/4-20 x 3/4"
33	48023	Hour Meter
34	48022	Ammeter
35	*	Screw, Phillips Washer Hd, #10-32 x 1/2"
36	45122	Panel Cover Weldment
37	*	Lockwasher, Ext. Tooth #10
38	*	Hex Nut, #10-32
39	45023	Shifter Handle
40	48092	Shifter Knob
41	*	Hex Head Bolt, 3/8-16 x 2"
42	45024	Shift Quadrant Weldment
43	04041-10	Washer, 3/8 x 2 x 16 ga.
44	45023	Shifter Handle
45	48092	Shifter Knob
46	42213	Bracket, Fuse Holder
47	04031-01	Lockwasher, #10 External Tooth
48	04021-01	Hex Nut, Elastic Stop, Lock #10-32
49	*	Screw, Phillips Head, #10-32 x 1-1/2"

\* Common hardware which should be purchased locally. All bolts Grade 5 plated, all other fasteners zinc plate.

## RIDER FRAME ASSEMBLY

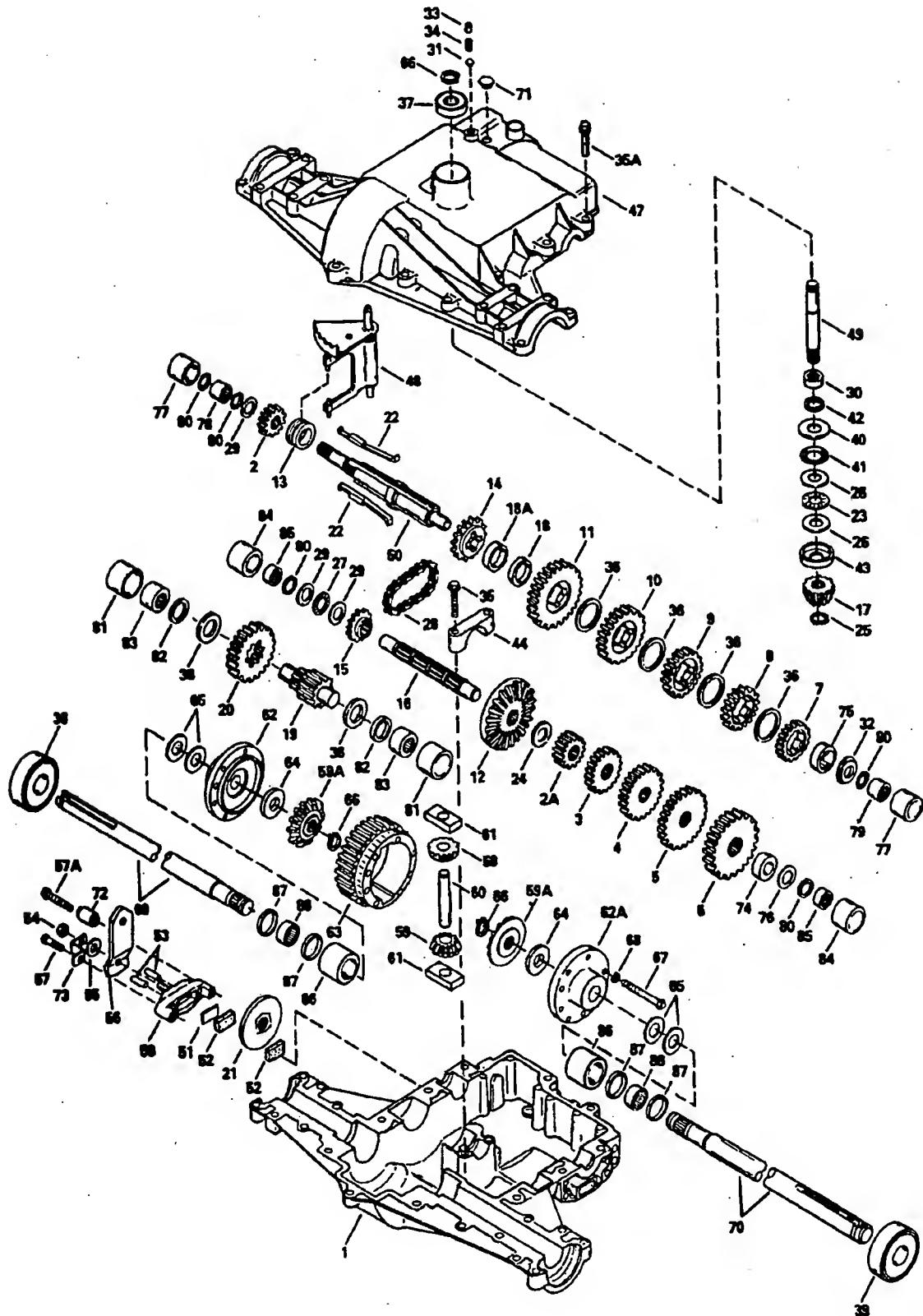


## RIDER FRAME ASSEMBLY

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	46057	Steering Frame	42	43049	Sleeve
2	48100-02	Bronze Bearing	43	48241	Foot Cable Assembly
3	04050-02	Retaining Ring, 1-1/8 Ext. Basic	44	*	Washer, 49/64 x 1-1/4 x 16 ga.
4	48114-01	Grease Fitting, 1/4-28 Str.	45	48097	Bumper Stop Cover
5	45008	Rear Wheel Pivot	46	*	Screw, Phillips Flat Head, 1/4-20 x 1-1/2"
6	*	Hex Head Bolt, 3/8-16 x 1-3/8"	47	43045	Bumper Stop
7	48828	Steering Cable	48	48141	Parking Brake Lever (Includes 49)
8	45035	Rear Wheel Yoke	49	48095	Grip
9	*	Lockwasher, 3/8 int. Thread	50	*	Rolling Pin, 5/32 x 3/4"
10	*	Hex Jam Nut, 3/8-24 UNF	51	48053	Spring
11	04001-40	Hex Head Bolt, 5/8-11 x 9"	52	*	Drive Lock Pin, 3/16 x 1-1/4"
12	*	Lockwasher, Spring, 5/8"	53	46029	Steering Handle (Includes 54)
13	*	Hex Nut, 5/8-11	54	48159	Grip
14	*	Lockwasher, Spring, 3/8"	55	*	Hex Head Bolt, 5/16-18 x 1-3/4"
15	*	Hex Nut, 3/8-16	56	*	Washer, 11/32 x 11/16 x 16 ga.
16	48005-01	Wheel Assy (Includes 16A-19)	57	*	Hex Elastic Stop Nut, 5/16-18
16A	48005-03	Rim Only	58	04026-03	Retaining Ring, 7/8 Ext. Basic
17	48005-04	Bearing Cup	59	48040	Pad, LH
18	48005-05	Bearing Cone	60	48041	Pad, Safety Pedal
19	48005-06	Grease Seal	61	48039	Pad, RH
20	43020-01	Spacer, Short	62	*	Hex Head Wood Screw #14 x 1"
21	43020-02	Spacer, Long	63	48036	Heel Rest
22	43021	Rear Wheel Sleeve	64	48037	Pad, Heel
23	48100-01	Bronze Bearing	65	48592	Seat Assembly (Includes 66-72,77)
24	45009	Steering Shaft	66	48592-01	Seat Only
25	45033	Safety Pedal	67	48014-03	Arm Rest
26	*	Flat Head Screw, #10-32 x 3/4 Slotted	68	48014-07	Back Strap
27	*	Hex Nut, #10-32 Elastic Stop	69	48014-04	Mounting Bracket, RH
28	48026	Foot Safety Switch	70	48014-05	Mounting Bracket, LH
29	04050-02	Retaining Ring, 3/4 Ext. E	71	48014-06	Wave Washer
30	48100-06	Bronze Bearing	72	*	Set Screw 3/8-16x3/4 Flat Point
31	*	Hex Nut, 1/2-13, Elastic Stop	73	48014-02	Arm Rest Kit (Includes 67-72,78)
32	48049	Spring, Foot Safety Switch	74	04041-11	Washer, 13/32 x 1-1/2 x 7 ga.
33	48100-03	Bronze Bearing	75	45210	Seat Plate
34	*	Hex Lock Nut, 1/4-20	76	*	Lockwasher, 5/16 Spring
35	04001-37	Hex Head Bolt, 1/2-13 x 5-1/2"	77	*	Hex Head Bolt, 5/16-18 x 3/4"
36	46140	Winch CBL Pulley (Includes 37)	78	*	Seat Support Spring
37	48100-04	Bronze Bearing	79	*	Hex Head Bolt, 3/8-16 x 1"
38	*	Washer, 1/2" (531 x 1.062 x .095)	80	*	Washer, 13/32 x 13/16 x 16 ga.
39	48096	Sleeve, Foot Pedal	81	*	Hex Head Bolt, 7/16-14 x 1-1/2"
40	45115	Foot Pedal Weldment	82	*	Lockwasher, 7/16" Spring
41	*	Hex Head Bolt, 1/4-20 x 1"	83	42366	Reinforcement, Seat Spring

\* Common hardware purchased locally. All bolts Grade 5 plated, all other fasteners zinc plate.

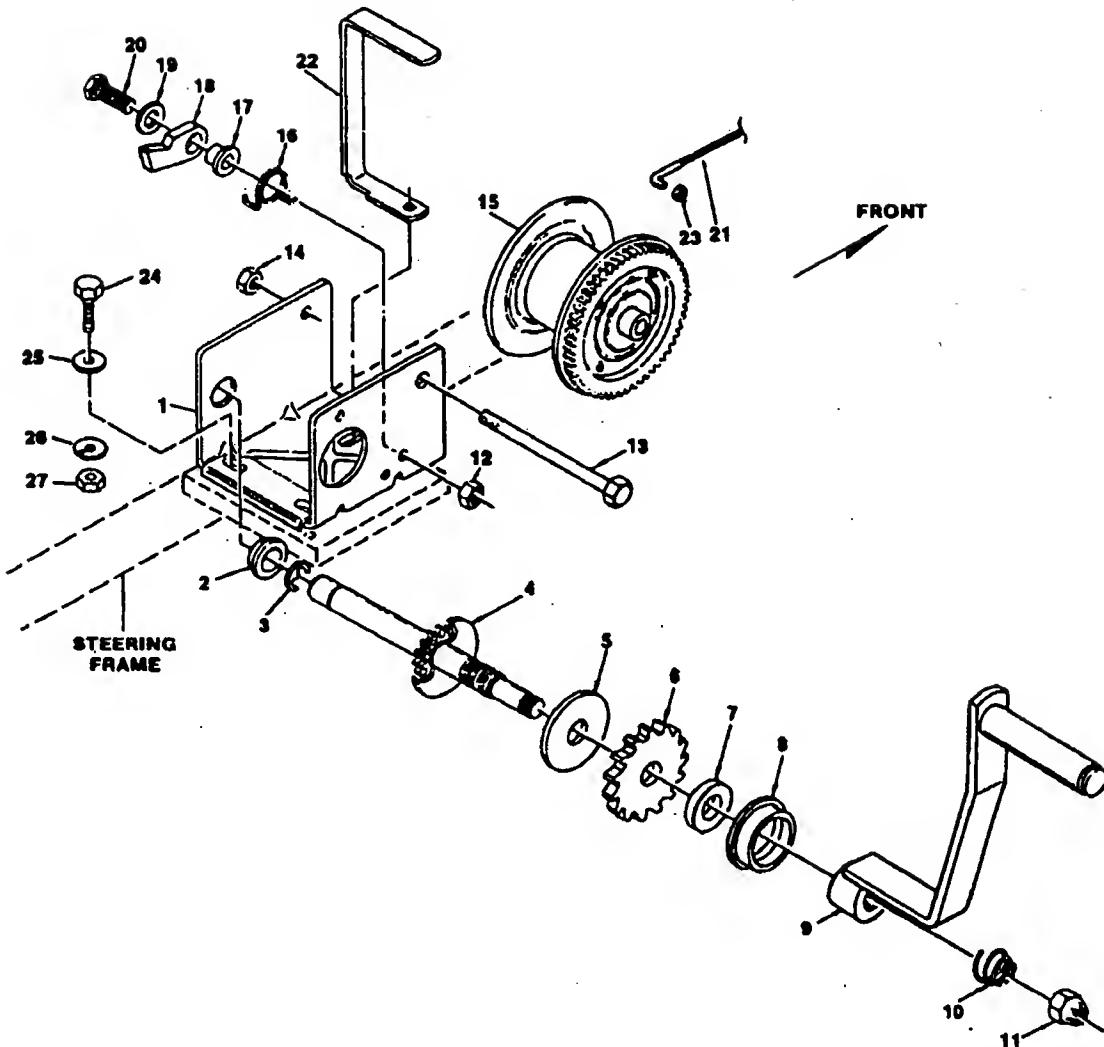
## **TRANSAXLE ASSEMBLY**



## TRANSAXLE ASSEMBLY

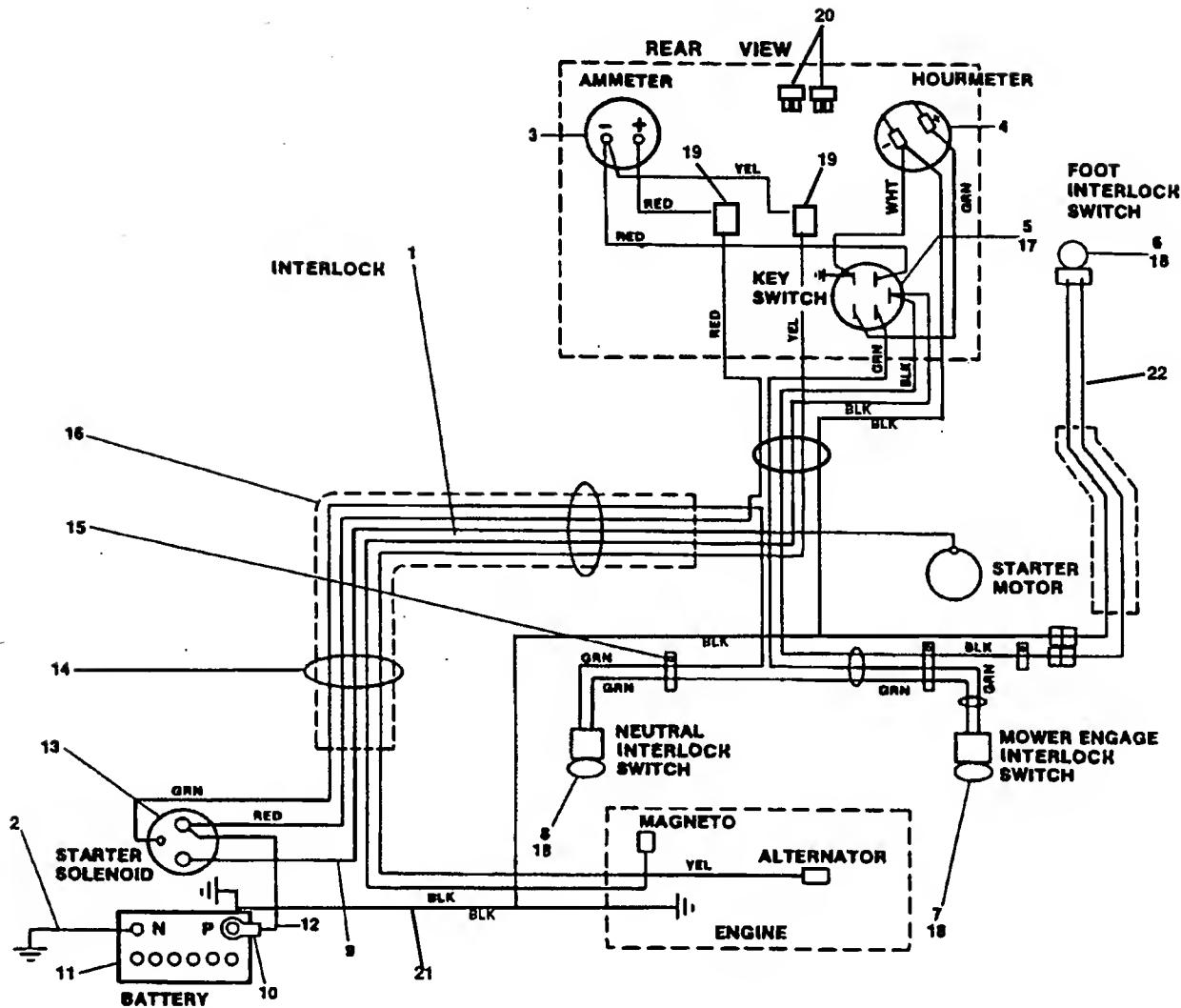
PEERLESS 820-003B / SCAG 48310

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	770088	Case, Transaxle	48	784342	Rod & Fork Assembly, Shift
2	778253	Gear, Spur (15 Teeth)	49	776274	Shaft, Input
3	778199	Gear, Spur (15 Teeth)	50	776277	Shaft Brake
4	778200	Gear, Spur (20 Teeth)	51	790007	Plate, Brake Pad
5	778201	Gear, Spur (25 Teeth)	52	790006	Pad, Brake
6	778202	Gear, Spur (28 Teeth)	53	786026	Pin, Drive
7	778203	Gear, Spur (32 Teeth)	54	792075	Locknut, 5/16-24
8	778204	Gear, Spur (25 Teeth)	55	792076	Washer, Flat
9	778205	Gear, Spur (30 Teeth)	56	790016	Lever, Brake
10	778206	Gear, Spur (35 Teeth)	57	792073	Screw, Hex Head. Thrd. Frm. 1/4-20 x 1-1/4"
12	778246	Gear, Bevel (33 Teeth)	57A	792085	Screw, Hex Head.Thrd.Frm.1/4-20 x 2-1/4"
13	784216	Collar, Shift	58	790025	Holder, Brake Pad
14	786123	Sprocket (18 Teeth)	59	778197	Pinion, Differential Bevel
15	786082	Sprocket (9 Teeth)	59A	778198	Gear, Bevel
16	776276	Shaft, Counter	60	786019	Pin, Drive
17	778245	Bevel Pinion, Input	61	776027	Block, Drive
18	786121	Spacer, Neutral	62	774833	Carrier, Differential (Threaded Holes)
18A	786122	Spacer, Neutral	62A	774834	Carrier, Differential
19	776275	Shaft, Output (9 Teeth)	63	778248	Gear, Ring (31 Teeth)
20	778247	Gear, Output (35 Teeth)	64	780107	Washer,
21	790043	Disc, Brake	65	780042	Washer, Thrust
22	792123A	Key	66	792018	Ring, Snap
23	780084	Bearing, Thrust	67	792020	Screw, Hex Hd., 1/4-20 x 2-1/4"
24	780051	Washer, Thrust	68	792006	Lockwasher, 1/4"
25	788040	Ring, Retaining	69	774796	Axe (12-1/4" Long)
26	780051	Washer, Thrust	70	774823	Axe (24-1/4" Long)
27	780071	Bearing, Thrust	71	792074	Plug, Hex Hd. 9/16-18
28	786081	Chain, Roller (No. 41 Chain, 24 Links)	72	786092	Spacer
29	780072	Washer, Thrust	73	786085	Bracket, Brake Lever
30	780155	Bearing, Needle	74	786071	Spacer
31	792077	Ball, Steel	75	786072	Spacer
32	780139	Washer, Thrust	76	780153	Washer
33	792078	Screw, Set, 3/8-16 x 3/8"	77	786144	Sleeve (Stepped)
34	792079	Spring	78	780150	Bearing, Needle
35	792073	Screw, Hex Head. Thrd. Frm. 1/4-20 x 1-1/4"	79	780152	Bearing, Needle (Capped)
35A	792129	Screw, Hex Head. Thrd. Frm. 5/16-18 x 1-1/4"	80	792001	"O" Ring
36	780108	Washer, Thrust	81	786142	Sleeve (Stepped)
37	786119	Bearing, Ball	82	786071	Ring, Square Cut
38	786128	Washer, Thrust	83	780168	Bearing, Needle (Capped)
39	780050	Bearing, Ball	84	786143	Sleeve (Stepped)
40	780165	Washer, Flat	85	780151	Bearing, Needle (Capped)
41	788077	"O" Rng	86	786145	Sleeve (Stepped)
42	788042	Seal, Oil	87	788070	Ring, Square Cut
43	780166	Washer, Cupped	88	780031	Bearing, Needle
44	786131	Cap, Bearing		788067	Gear Grease, Bentonite
47	772097A	Cover, Transaxle			

**WINCH LIFT SYSTEM**

**WINCH LIFT SYSTEM**

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	48043	Winch Assembly (incl. 1-8, 10-20)	13	205008	Reel Shaft
2	204009	Shaft Bushing	14	205155	Lock Nut, 7/16-14
3	205116	E-Ring	15	304227	Winch Reel
4	304228	Drive Shaft	16	204363	Ratchet Spring
5	204362	Pressure Plate	17	404166	Ratchet Spacer
6	404164	Ratchet Wheel	18	404409	Ratchet Pawl
7	404163	Pressure Washer	19	205024	Flat Washer
8	204359	Shaft Bushing	20	205161	Ratchet Bolt
9	48044	Winch Handle	21	48045	Winch Cable Assembly
10	204364	Handle Spring	22	42127	Cable Guide
11	205015	Handle Nut	23	04021-03	Hex Lock Nut, 1/4-28
12	205011	Hex Locknut, 3/8-16			

## ELECTRICAL SYSTEM ST-18KH



Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	48259	Wiring Harness, Complete	12	48029-03	Battery Cable, 13-3/4" Red
2	48029-10	Battery Cable, 20" Black	13	48016	Starter Solenoid
3	48022	Ammeter	14	48028	Cable Tie
4	48023	Hour Meter	15	48030	Cable Clamp
5	48017	Key Switch	16	48033	Plastic Conduit
6	48026	Foot Interlock Switch	17	48018	Connector, Starter Switch
7	48019	Mower Engagement Interlock Switch	18	48020	Connector, Interlock Switch
8	48021	Neutral Interlock Switch	19	48892	Wire Assembly w/Fuse
9	48029-02	Battery Cable, 31-1/2" Red	20	48298	Fuses, 20 Amp Blade Type
10	48126	Rubber Boot	21	48868	Wire Assembly Ground
11	48015	Battery	22	48616	Wire, Foot Switch

**REPLACEMENT DECALS****HEAVY DUTY COMMERCIAL**48072  
Decal - Heavy Duty Commercial**CAUTION**YOU MUST USE CLUTCH  
WHEN SHIFTING TO AVOID  
GEAR DAMAGE48147  
Decal - Declutch

MANUFACTURED UNDER ONE OR MORE  
OF THE FOLLOWING PATENTS:  
4,487,000 4,967,543  
4,585,002 4,991,382  
4,536,733 4,999,946  
PATENTS PENDING

48182  
Decal - Patent48079  
Decal - Key Switch

slow

48076  
Decal - Throttle**! WARNING****ROTATING BLADES AND BELTS**

- KEEP HANDS, FEET & CLOTHING CLEAR
- KEEP ALL GUARDS IN PLACE
- SHUT OFF ENGINE & DISENGAGE BLADE CLUTCH BEFORE SERVICING
- CLEAN AREA OF DEBRIS BEFORE MOWING
- USE CAUTION IN DIRECTING DISCHARGE
- KEEP BYSTANDERS, CHILDREN & PETS AWAY
- READ INSTRUCTION MANUAL BEFORE OPERATING

DO NOT OPERATE WITHOUT DISCHARGE CHUTE, MULCHING KIT, OR ENTIRE GRASS CATCHER INSTALLED

48073  
Decal - Danger Rotating Blades**SCAG**48314  
Decal - Scag Logo**61**48320  
Decal - 61**SCAG**48825  
Decal - Scag Logo

5-  
4-  
3-  
2-  
1-  
N-  
R -

48074  
Decal - Shifter Index48078  
Decal - Mower Engage48071  
Decal - OPEL Safety48712  
Decal - Install Belt Cover**IMPORTANT**

- ALWAYS TRANSPORT WITH CUTTER DECK DOWN AND LIFT CABLE SLACK
- MOW WITH WINCH CABLE SLACK TWO FULL TURNS
- FOR SMOOTH TURNS DEPRESS FOOT CLUTCH PEDAL SLIGHTLY

48048  
Decal - Transport Down

**⚠ WARNING**

If incorrectly used, this machine can cause severe injury. Those who use and maintain the machine should be trained in its proper use, warned of its dangers, and should read the entire manual before attempting to set up, operate, adjust or service the machine.

**LIMITED WARRANTY-COMMERCIAL EQUIPMENT**

Any part of the Scag commercial mower manufactured by Scag and found, in the reasonable judgment of Scag, to be defective in materials or workmanship, will be repaired or replaced by an Authorized Scag Service Dealer without charge for parts and labor. This warranty is limited to the original purchaser and is not transferable. Proof of purchase will be required by the dealer to substantiate any warranty claims. All warranty work must be performed by an Authorized Scag Service Dealer.

This warranty is limited to the following specified periods from the date of the original retail purchase for defects in materials or workmanship:

- \* Frame, deck and structural components including oil reservoirs - 1 year
- \* Wear items including drive belts, blades, hoses and tires are warranted for 90 days
- \* Engines and electric starters are covered by the manufacturer's warranty period.
- \* Drive system components are covered by the manufacturer's warranty period.  
(Excluding fittings, hoses, cooling system, oil reservoir, drive belts). Drive systems are warranted by Scag Power Equipment in conjunction with the component manufacturer.
- \* Batteries are covered for 1 year.
- \* Any Scag product used for rental purposes is covered for 90 days.

The Scag mower, including any defective part must be returned to an Authorized Scag Service Dealer within the warranty period. The expense of delivering the mower to the dealer for warranty work and the expense of returning it to the owner after repair will be paid for by the owner. Scag's responsibility is limited to making the required repairs and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any Scag mower.

This warranty does not cover any mower that has been subject to misuse, neglect, negligence, or accident, or that has been operated in any way contrary to the operating instructions as specified in the Technical Manual. The warranty does not apply to any damage to the mower that is the result of improper maintenance, or to any mower or parts that have not been assembled or installed as specified in the Technical Manual. The warranty does not cover any mower that has been altered or modified changing performance or durability. In addition, the warranty does not extend to repairs made necessary by normal wear, or by the use of parts or accessories which, in the reasonable judgment of Scag, are either incompatible with the Scag mower or adversely affect its operation, performance or durability.

Scag Power Equipment reserves the right to change or improve the design of any mower without assuming any obligation to modify any mower previously manufactured.

All other implied warranties are limited in duration to the one (1) year warranty period or ninety (90) days for mowers used for rental purpose. Accordingly, any such implied warranties including merchantability, fitness for a particular purpose, or otherwise, are disclaimed in their entirety after the expiration of the appropriate one year or ninety day warranty period. Scag's obligation under this warranty is strictly and exclusively limited to the repair or replacement of defective parts and Scag does not assume or authorize anyone to assume for them any other obligation. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Scag assumes no responsibility for incidental, consequential or other damages including, but not limited to, expense for gasoline, expense of delivering the mower to an Authorized Scag Service Dealer and expense of returning it to the owner, mechanic's travel time, telephone or telegram charges, rental of a like product during the time warranty repairs are being performed, travel, loss or damage to personal property, loss of revenue, loss of use of the mower, loss of time or inconvenience. Some states do not allow the exclusion or limitation of incidental or consequential damages. So the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

**PLEASE BE CAREFUL**

1. Keep all shields in place, especially grass discharge.
2. Stop machine and remove spark plug wire to adjust or service.
3. When mechanism becomes clogged, stop engine before cleaning.
4. Keep hands, feet and clothing away from power-drive parts.
5. Keep off implement unless seat or platform is provided.
6. Keep others off.

**FAILURE TO FOLLOW CAUTIOUS OPERATING PRACTICES MAY RESULT  
IN SERIOUS BODILY INJURY. WE WANT YOU TO CONTINUE TO ENJOY  
AND PROFIT BY USING OUR PRODUCTS.**

**OWNER REFERENCE**

MODEL NUMBER \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_

ENGINE MODEL \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_